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A PRELIMINARY STUDY OF THE PSELAPHIDAE (COLEOPTERA) OF THE GUIANAS

BY

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Howard K. Gloyd, Director of the Museum

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INTRODUCTION

This is the first of a series of papers on the taxonomy and zoögeography of the Pselaphidae of British Guiana (Demerara) , Dutch Guiana (Surinam) and French Guiana (Cayenne) . Three papers are planned, of which the last will include keys to the species of the region under review and a general zoogeographic analysis of its pselaphid fauna in relation to the Neotropical and Nearctic areas.

The occasion for this study was provided by Professor Henry Dietrich in April, 1943 when the latter asked me to name the neotropical pselaphids in the collections of Cornell University. When the beetles were sent to me, the collection was found to be rich in material from Dutch Guiana. The specimens had been obtained by P. P. Babiy, at lights at night, between April 19 and June 29, 1927, chiefly from Moengo and Zanderij, Dutch Guiana with smaller samples from several localities in British Guiana.

Such wealth of material from an almost unknown area is very welcome for several reasons. Its study permits an estimation of the penetration of pselaphids from adjacent areas, in this case especially desirable with respect to the large Brazilian fauna, and some general view of the possible colonization of the Antillean chain, either in modern time through rafting, or by past land connections. Of substantial practical worth is the rediscovery of species, often far from their type locality, described many years ago by Schaufuss, Reitter, Sharp, and Raffray, and not recorded since their original description. Inevitably in such collections there is new material. In the case of new species, the holotype, allotype and half of the paratypes are deposited in the collections of Cornell University; half of the paratypes are in the collection of the writer. Cornell type numbers are stated in the descriptions.

PYXIDICERINI

Bythinoplectus impressifrons Raffray (PI. III, 2, 3)

Raffray, 1896, p. 230-231, Pl. 10, fig. 15.
Park, 1942, p. 37.

This species was described on the male sex and up to the present is known only from the original record from Brazil. In the Cornell material there is a single male from Moengo, Boven, Cottica R., Dutch Guiana, May 27, 1927.

In 1942 the writer lacked sufficient information to key out the species of this genus. The following key is complete save for *formicetorum* Raffray (1912) from Argentina.

KEY TO THE SPECIES OF *BYTHINOPLECTUS*

1 Known only from the Antilles
Known from Mexico, Central or South America

2 (1) Sides of pronotum regularly oblique for posterior two-thirds, then abruptly and strongly narrowed in anterior third to make an acute angle; male with second antennal segment slightly oblique on internal face with the base obtusely produced, and with a small median elevation on the dorsal surface of the large frontal tubercle
acutangulus Raffray, 1903.
(Grenada, Windward Islands)

Sides Sides of pronotum not so formed, simply narrowed but not abruptly angulate at anterior third *foveatus* Reitter, 1883.
(St. Thomas, Virgin Islands)

3 (1) Body subglabrous, strongly shining and with such minute punctulation that it appears on casual study impunctate, save for pronotal base which is obviously punctate
transversiceps Raffray, 1903.
(Blumenau, Brazil)

Body subopaque to shining, but with head and pronotum distinctly punctate, punctate-granulate, or cribrate 4

4 (3) Prominent frontoantennal tubercle dorsally undivided
female *denticornis* Raffray, 1896.
(Morelos and Tabasco, Mexico)

Prominent frontoantennal tubercle transversely divided into two tubercles (males) 5

5 (4) First antennal segment coarsely punctate-granulate, strongly longitudinally arcuate, with dorsal face concave and apically produced into an obtusely dentate process above articulation with second segment; frontal tubercle divided into an anteroventral and slightly overhanging posterodorsal tubercle *denticornis* Raffray, 1896.
(Morelos and Tabasco, Mexico)

First antennal segment simple, shining, punctulate, slightly longitudinally arcuate; frontal tubercle subvertically divided into an anterior and a posterior subtriangular tubercle, these well-apart and not overlapping, with a subtriangular glabrous area each side of tubercles (P1. III, 2, 3); female unknown *impressifrons* Raffray, 1896.
(Brazil; Moengo, Dutch Guiana)

EUPLECTINI

***Thesiastes ramtus* new species (Pl. V, 1)**

Holotype male. Measurements: head 0.15 x 0.19 mm.; pronotum 0.15 x 0.20 mm.; elytra 0.27 x 0.27 mm.; abdomen 0.24 x 0.25 mm., total length 0.81 mm.

Shining yellowish-brown, with the fine punctulation not evident. Pubesence very minute (0.006 to 0.013 mm. long) , but light in color and rather abundant so that it is evident against the integument.

Dorsal surface as illustrated (Pl. V, 1) . Maxillary palpi as for genus. Antennae eleven-segmented, normal, I and II subequal in width, II subspherical, III much smaller, abbreviated obconical; IV to VII transverse-moniliform, small, as wide as third ; VIII very slightly larger,

trapezoidal ; last three forming club, IX and X suddenly wider than eighth, transverse ; XI large, as long as the preceding three united, as wide as tenth, truncate at base, apical half shortly conical, heavily pubescent.

Ventral surface of head transversely, arcuately tumid between the prominent, coarsely-faceted eyes, and bearing eight specialized setae. These setae, so characteristic of *Thesiastes* and *Bibloplectus,* are

rows. The first row has a seta just posterior of each cardo and two in the middle just posterior of the submentum ; the second row has the four setae slightly smaller and arranged as in the first row.

Prosternum simple ; not medianly, longitudinally carinated.

Prothoracic coxae and mesothoracic coxae contiguous; the metathoracic coxae slightly separated. Metasternum swollen medianly, with this area flattened and bearing medianly a very slightly concave area.

Seven sternites, with the last having a minute, median, symmetrical, subogival-elongate pygidial plate. Legs as for genus and sex.

A llotype female as for holotype save that there are six sternites instead of seven, with the last large, rounded triangular with an acute apex.

Described on ten specimens. Holotype male (Cornell U. Type No. 2219), allotype female, five paratype males and two paratype females from Moengo, Boven, Cottica R., Dutch Guiana, at light at night, May 24, 1927. One male paratype Mackenzie, Demerara R., British Guiana, at light at night, June 24, 1927. Collected by P. P. Babiy.

This is a minute and interesting species. The well-developed wings are, as usual, fringed with special setae. In addition to these marginal alar setae, and the spiniform capitulates of the ventral head surface. there is a fringe of relatively long setae overhanging the basal elytral foveae, as well as the apical elytral margins. There is some variation in size, the sample varying from 0.93 to 0.76 mm. in length. The discal pronotal fovea varies in size to some extent, but, as usual in the euplectoid aggregates, the fovea appears very different in various positions, depending upon the obliquity of the illumination, position of specimen, amount of magnification and condition of pubescence.

This is the third neotropical species to be described. The others being *argus* (Reitter) of Chile, and *liliputanus* Raffray of Grenada, Windward Islands. All three belong in Group I of the genus, as organized by Raffray (1903, p. 543). The new species is in the size range of *liliputanus* and the nearctic *pumilus* (LeConte). It differs from *pumilus* in lacking the granulate-punctate head and pronotum, and from *pumilus, liliputanus,* and the nearctic *fossulatus* (Brendel) in its minute pronotal discal fovea.

It is most closely related to *liliputanus*. It differs in many details. For example, *liliputanus* (Raffray 1903, p. 543-544) has (1) oblong vertexal foveae, (2) pronotum as long as wide, and (3) discal pronotal fovea large and oblong, much larger than in the well-known *fossulatus*. *Thesiastes ramtus* has the pronotum transverse, one-third wider than long; circular vertexal foveae and a small acute-oval pronotal discal fovea.

Raffray states that his type of *liliputanus* has the first two tergites transversely impressed at base. *Thesiastes ramtus*, as well as the nearctic *pumilus* and *fossulatus*, have the first three tergites impressed at base as illustrated (Pl, V, 1). These transverse impressions, with their cari nated lateral surfaces, can be seen at high magnification with strong il-lumination. I am inclined to discount this apparent striking structural difference between these species and *liliputanus*, since the inference is that the Antillean species have the first three tergites formed as in the North American and South American species.

Zoögeographically, *ramtus* is very interesting. The genera *Thesiastes*, *Bibloplectus* and *Euplectus* are widely distributed over the world, with many species. However, *Bibloplectus* has no neotropical species and the other two genera are very poorly represented. The inference is that these genera originated elsewhere and entered the Neotropical Region from North America, although there is no palaeontological information avail able to affirm or deny this. If this assumption is tenable, then two dis persal routes are possible. That is, ancestral *Thesiastes* moved down *via* the Ceneral American, or the Antillean route, or both. Since there are no known species from Mexico or Central America, and since nearctic *Thesiastes* are known from Rhode Island to Florida, west to Louisiana and Illinois, and since the Antilles have a species closely related to *ram tus* of Dutch and British Guiana, the balance of probabilities is in favor of the Antillean route, at some previous period when there was a more continuous terrestrial bridge than now exists. On the other hand, many new species probably are awaiting discovery, which may wholly alter this view ; the isolated position of the Chilean *argus* is not at once under standable. Finally, viewing the broken Antillean route as it exists today, colonization of the Guiana coasts from the West Indies does not appear at all likely by a small, relatively poor-flying, nocturnal species. Similarly, any colonization by rafting would seem more probable in the opposite direction, since the major drift is N, NW instead of S, SE (Park, 1942, p. 365). Hence the distribution of *Thesiastes* in the Western Hemis phere appears as a pattern fragment of an earlier geological period, and second, to favor southward migration from the southeast United States, *via* what are now the Antilles.

Rhinoscepsis LeConte (1878)

The Guiana material in this genus has increased our knowledge so materially that a generic revision is desirable at this time. This exclusively American genus may be characterized by the following combination of structural characters: (1) eleven-segmented antennae, of which the first segment is relatively elongate, and the last three form a poorly-developed club; (2) antennae are subcontiguously articulated on the ventroanterior face of a long, narrow antennal rostrum or frontal tubercle ; (3) mentum normally small and not covering the mouth and mouthparts ; (4) intermediate coxae contiguous; (5) posterior coxae with their articular faces conically produced for trochantal articulation ; (6) Intermediate trochanters very obliquely articulated with the femora, so that the latter are near their respective coxae ; (7) prosternum not medianly, longitudinally carinated ; (8) each elytron with two basal foveae, and a subhumeral fovea ; (9) both sexes with seven visible sternites ; the seventh in the female undivided ; the seventh in the male asymmetrically divided into a large right, and a small left subtriangular plate; (10) aedeagus euplectine, bilaterally asymmetrical ; (11) tarsi three-segmented with a small first, and relatively large last two segments; tarsal segments not bilobed, and distal segment bearing a long, arcuate primary claw and a long, straight setiform, accessory claw.

Subgenus *Rhinoscepsis* s.s.

Each side of head with a sinuate cephalic sulcus which begins on the occiput, extends obliquely mesiad to a point near the vertexal fovea, where it turns laterad to lie behind or about the eye, and then turns posteriad, to end in a deep, ovate genal fossa. Lateral pronotal margins more or less micro-dentate, subserrate or crenulated.

This subgenus includes :

1. *bistriatus* LeConte, 1878, p. 382. Genotype (Bowman, 1934, p. 144). Described from Florida, and since recorded in Steinhatchee River drainage of that state, and its anatomy discussed, by Park (1942, p. 85, Pl. IX, X).

2. *dybasi* Park, 1942, p. 88-89. San Juan, Veracruz, Mexico.

3. *falli* Park, 1942, p. 86-88. Corumba, Matto Grosso, Brazil. Since this description I have received both sexes from Paraguay.

4. *gracilis* (Schaufuss), 1872, p. 261-262. Amazon River area, Brazil. Described in the genus *Panaphantus,* and not since recorded.

5. *militaris* (Schaufuss), 1872, p. 261. Brazil, described in the genus *Panaphantus*. Fortunately a small series of this species was present in

the Dutch Guiana collection (4 males, 4 females) from Moengo and Zanderij (Pl. V, 2, 3, 4, 5, 7, 8, 9).

6. *pubescens* Raffray, 1898, p. 224. Amazones, Brazil. *Rhynoscepsis* Raffray, *nec* LeConte.

7. *richteri* Raffray, 1908, p. 63-64. Argentina. *Rhynoscepsis* Raffray, *nec* LeConte.

8. species A. This is an unique male from Moengo, Dutch Guiana. It runs to *militaris* in previous keys (Raffray, 1898 and Park, 1942) but is obviously specifically distinct from that species. I have left it unde scribed since both antennae are missing beyond the first segment. When it does appear it can be easily separated from *militaris.* For example, spe cies A has the sixth sternite more lunate, and bears centrally a subcircu lar, polished and glabrous area of large size, which is quite distinct from the subgranulate-pubescent sternite as a whole (Pl. V, 6) ; second, the posterior trochanters are simple. On the other hand, *militaris* has the sixth sternite broadly depressed medianly, with the entire segment granu late-pubescent, these short setae directed posteriorly save in the depres-sion, where they are longer, semi-erect, and recurved anteriorly (Pl. V, 5) ; second the posterior trochanters are very abnormal, each bears a thin, oval disc, nearly as long as the trochanter and fastened to its ven trodistal face (Pl. V, 4). When the posterior tibiae are folded against the femora, the apical end of each tibia rests against this trochantal plate.

Subgenus *Rafrhisis* new subgenus

Sinuate cephalic sulci wholly lacking. Lateral pronotal margins not discernibly dentate. To appreciate these striking differences contrast Pl. V, 3, 7 of typical *Rhinoscepsis* with the same areas of Pl. VI illustrating the new subgenus.

This subgenus is of interest since it serves to connect the typical *Rhinoscepsis* with other euplectoid genera. In this connection the lack of cephalic sulci is notable. This new subgenus runs to *Rhinoscepsis* in Raffray's key to Euplectini (1908, p. 35) and in the author's key (1942, p. 66). In this last key, however, the definitive couplet (number 22) must now be reorganized, since one of the three characters used, namely the presence of the sinuous cephalic sulci, applies to the first subgenus alone.

***Rhinoscepsis (Rafrhisis) orbis* new species (P1. VI)**

Type male. 1.07 mm. long by 0.40 mm. wide.

The external structure of both dorsal and ventral surfaces has been carefully delineated to scale (Pl. VI), so that this description can be

shortened by reference to points of especial importance, or to those features not illustrated.

The general body color is a yellowish-brown, with legs, palpi and last antennal segment yellow. The conspicuous pubescence is dense ; semierect on head and pronotum, posteriorly inclined on elytra and prostrate on abdomen.

The characteristically formed head has the antennae almost contiguously articulated on a subspherical termination of the narrow rostrum. Posteriorly this rounded tubercle is separated from the rest of the head by a transverse sulcus. A longitudinal sulcus extends posteriorly from this transverse sulcus, to end in a large median, frontal fovea. From median fovea to medianly notched occiput, the vertex is elevated into a prominent linear crest or vertexal carina. On either side of the crest lies a large vertexal fovea, and on the lateral margin, opposite each fovea is the eye. Each eye is composed of 24 large facets, and is prolonged posteriorly as illustrated. The head has no trace of the sinuous sulci so typical of the rest of the genus.

The eleven-segmented antennae are notable in that the fifth and seventh segments are slightly larger than the fourth, sixth and eighth.

The maxillary palpi differ from most species of the genus by the narrower, less swollen distal segment.

The pronotum bears the usual deep, subentire longitudinal median sulcus, and the biarcuate transverse sulcus connecting the lateral foveae. Opposite these foveae, the lateral margins are only slightly incised. The notable pronotal feature is the nondentate, subentire lateral margins. These are not characteristic of the genus, and the presence or absence of minute teeth or denticles is determined only after the pubescence is either removed or otherwise allowed for.

Elytra and tergites typical of genus, as illustrated. There are five visible tergites, of which the fifth is visible from a ventral view, closely invest ing the last two sternites. There are seven sternites, as illustrated. The sixth is complex: medianly there is a broadly, transversely oval impres sion in basal half, and a small, deep, glabrous fossa in apical fourth ; these two depressed areas are separated by a narrow elevated ridge which swells rapidly on each side so that this raised area is seen as a pair of oval tumuli connected narrowly in the middle. The last, or seventh sternite is, as usual, asymmetrically divided into a small, triangular sinistral, and a much larger dextral plate.

Legs as for the genus, save for the femora which are very unusually modified. Anterior femora each with a large, triangular spine which arises from the ventroanterior face ; this spinoid tubercle has its ventral face deeply, transversely sulcate. Posterior femora each with the ventral face dilated by the subtriangular extension of the posterior margin ;

this dilated median third is deeply excavated. Posterior femora each with an acute spine on mesial face in basal fourth.

Described on a single male, the type (Cornell U. Type No. 2220) , from Moengo, Boven, Cottica R., Dutch Guiana, May 13, 1927.

The following key is greatly improved and supersedes one given earlier (Park, 1942, p. 86) .

KEY TO THE SPECIES OF *RHINOSCEPSIS*

1 Ventral surface of head with a conspicuous, glabrous, ovate fossa extending posteriorly from each eye (Pl. V, 7) 2

Ventral surface of head simple, the ovate fossae wholly absent (P1. VI) *orbis.*

2 (1) Eyes vestigial, with between 8 to 10 facets (Pl . IV) 3

Eyes normal for genus, with between 22 to 30 facets (Pl. IV) 4

3 (2) First antennal segment subcylindrical *bistriatus.*

First antennal segment of male triangular with the ventral face strongly produced mesioposteriorly as a broad arcuate-triangular spine *dybasi.*

4 (2) Longitudinal pronotal sulcus narrow, shallow and obsolete on middle of disc, but well-developed as an apical and basal fovea (P1. V, 3) 5

Longitudinal pronotal sulcus subentire, strong, of subequal width and depth 7

5 (4) Pronotum with length and width subequal *gracilis.*

Pronotum distinctly transverse 6

6 (5) Male with posterior trochanters each having an ovate plate fastened at the ventrodistal angle (Pl. V, 4) and with sixth sternite evenly granulate-punctate, medianly depressed, with pubescence of depression longer, erect and recurved (Pl. V, 5) *militaris.*

Male with posterior trochanters simple and with sixth sternite granulate-punctate save medianly where there is a large, circular, glabrous area in conspicuous contrast to adjacent pubescent areas (Pl. V, 6) species A of text.

7 (4) Lateral pronotal margins not sensibly sinuate or incised opposite each lateral fovea *richteri.*

Lateral pronotal margins incised opposite each lateral fovea 8

8 (7) Lateral pronotal margins slightly incised opposite each lateral fovea; male with sixth sternite simply impressed medianly and seventh rather large, triangular and obliquely divided; female unknown *pubescens.*

Lateral pronotal margins deeply incised opposite each lateral fovea; male with second or third to seventh sternites excavated, or spined or modified; female with a posteriorly directed spine from the median apical margin of third tergite 9

9 (8) Median apical margin of third tergite bearing a spine (In recently studied material from Paraguay, one specimen had a long spine as in the type specimen; one specimen had the spine short and tuberculoid.) *falli* FEMALES.

Tergites not bearing spines (Since the original description was based on the female sex, this opportunity is taken to describe the male sex based on material from Paraguay. One male had entire venter excavated: sternites II and III each with a very wide, deep excavation in median third; IV narrowly foveate in median fifth, but the fovea very deep, involving the fifth sternite, and extending obliquely beneath the third; V nearly invisible medianly; VI with a deep median spherical fossa and an erect, conical spine at median apical margin; VII small, triangular, and obliquely divided. A second male had the same pattern, but on a very reduced scale: II abnormal, III and IV simply medianly very concave; V as above; VI with median depression, and apical spine reduced to a small tubercle; VII as above.) *falli* MALES.

The Dutch Guiana material included a small series of four males and four females of *militaris* (Schaufuss) , and since the aedeagus has never been described in the genus *Rhinoscepsis,* two males were sacrificed for this purpose. The dissection was made as previously discussed (Park, 1942, p. 10-11, 15-17, Pl. I, II, III, VIII, X; 1944, Pl. I) . The aedeagus is illustrated from dorsal and lateral aspects (Pl. V, 8, 9) and needs little additional explanation, since its measurements are given in the explanation of the figure. Two facts are apparent at once. The aedeagus is of the typical asymmetrical form found in Euplectini. To the interested reader this will be clear by a comparison of the aedeagus of *militaris* in dorsal view (Pl. V, 8) with the same aspect of the aedeagus of *Dalmosella tenuis* Casey (Park, 1942, Pl. XII, 15) . Since *Rhinoscepsis* and

Dalmosella are genera widely apart in the tribe Euplectini, this essential similiarity in male copulatory organs attests the reality of the tribe as a natural aggregate. In both genera the aedeagus has the basal portion of the median lobe swollen into a large basal bulb with a single, circular diaphragm, and well-developed bulbar muscles. In *militaris* the center of the diaphragm bears a circular, melanized operculum. In both genera the aedeagus is very asymmetrical, and this asymmetry is of the same general type ; that is, the apical half of the aedeagus is affected, the morphological left side is much more complex than the morphological right side. In *militaris* there is a single, small, contorted stylus on the right ; a superimposed median pair of styli ; and a partially overlapping pair on the left, the inner of which is very slender and apically lies beneath the mesial or broader of two teeth which terminate the apex of the broad extreme left stylus. There are two quickly discerned differences: the *Dalmosella* aedeagus has an evenly ovate basal bulb, which is longer than wide, and the single seventh sternite is asymmetrically articulated, so that it swings to the right to allow extrusion of the aedeagus. The *Rhinoscepsis* aedeagus (at least in *militaris)* has a thimble-shaped basal bulb which is much deeper than either wide or long, with the apical styli arising from the center of this vertical dimension ; the seventh sternite is asymmetrically divided into a right and a left plate, of which the left is smaller. When the *militaris* aedeagus is in repose within the haemocoel, it lies with its morphological dorsal surface parallel with the dorsal surface of the abdomen, and its apical (morphological posterior) end oriented posteriorly, so that the large left stylus has its bifid apex resting just above the left aedegeal plate of the seventh sternite. At least, this was the condition in both males dissected. This suggests that the two aedegeal plates swing laterally, and the aedeagus is exserted, at copulation, and thrust ventrally and anteriorly, so that insertion in the female genital pore finds the aedeagus with its morphological dorsal surface ventral, and its morphological posterior end directed anteriorly, within the female copulatory bursa. Field and laboratory observation of copulation in *Dalmosella, Melba* and *Euplectus* support this suggestion.

Finally, it will be remember that the general morphological plan of Pselaphidae supports the view that these beetles were derived from staphylinoid ancestry ; that the pselaphid aedeagus in its primitive, bilaterally symmetrical form is found in such central tribes as Brachyglutini, where the species investigated had an aedeagus structurally comparable to that of such staphylinid genera as *Phloeocharis* (Oxytelinae) ; and that the euplectine aedeagus is very specialized, both by simplification through loss of parts as well as progressive bilateral asymmetry. These ideas (Park, 1942) are supported by the specialized aedeagus of *Rhinoscepsis.* On morphological data the euplectines do not appear to be as primitive

as Brachyglutini as a whole, although both tribes are large, have apparently undergone a great deal of evolution, and consequently both contain relatively primitive and very specialized genera.

When the distribution of the subgenus *Rhinoscepsis* is mapped (Pl. IV) , it is immediately clear that the species with vestigial eyes are found northwards, from central tropical Mexico and subtropical Florida, while those with relatively well-developed eyes are southwards, from the Guiana coast, through Brazil and Paraguay into northern Argentina. It should be emphasized that this distribution is based on scanty data, and hence should be thought of as a first sketch of a picture. Two areas need attention especially, the long neotropical stretch between the Isthmus of Tehuantepec and the Orinoco river, and second the Antilles.

Nevertheless, on available information it would appear that the subgenus has dispersed from an Amazonian center *via* the Mexican route. If this is tenable, then present distribution of the subgenus seems to be a dispersal pattern fragment just the reverse of *Thesiastes.* The peripheral position of the vestigial-eyed species further suggests a distribution of the Matthewsian type (Matthew, 1915) . Here again much information is needed.

BRACHYGLUTINI

***Drasinus (Paradrasinus) cisinsularis* Park (Pl. III, 4)**

This species was described (1942, p. 183) from the Panama Canal Zone. Three males and one female were collected from Moengo, Dutch Guiana. This extends the known range of the species nearly 2000 miles eastwards, and reaffirms the view that the Panamanian fauna is predominantly South American in composition. Thus this genus was one of five, out of thirty-one genera on Barro Colorado Island, Canal Zone, which was thought to be predominantly Central American (Park, 1942, p. 371), and the recording of *cisinsularis* in the Guianas may tend to reduce this number to four genera.

This record is of interest also in connection with another species, *Drasinus (Drasinus) lewisi* (Raffray) of Brazil. Both species have the typical *Drasinus* habitus, but differ subgenerically in their maxillary palpi. In *lewisi* the third palpomere is briefly ovate, and hardly one-fourth as long as the fourth segment ; the fourth segment is fusiform. In *cisinsularis* the third palpomere is rounded-triangular with convex outer and angulated inner face, and is slightly less than one-third the length of the fourth segment ; the fourth segment has a straight mesial and a strongly convex lateral edge (Pl. III, 4) . The straight mesial edge is very thin and sharp, and minutely setose ; the palpal cone is relatively large. Specifically these two species differ in the anatomy of the front, antennae, discal elytral stria and basal abdominal carinae.

***Decarthron (Decarthron) babiyi* new species**

Type male. Measurements : head 0.28 x 0.37 mm.; pronotum 0.33 x 0.37 mm.; elytra 0.54 x 0.73 mm.; abdomen 0.40 x 0.70 mm. ; total length 1.6 mm.

Moderately shining, yellowish-brown, with head, pronotum and abdomen finely and distinctly punctate, elytra with coarser punctation ; the pubescence dense, fine, appressed.

Head with a pair of prominent, coarsely faceted eyes, four times the anteroposterior length of tempora (tempora very oblique, and if measured along their obliquity, tempora half as long as eyes) . Head with a very convex vertex ; in profile the convexity is seen as a long arc from cervical constriction, through occipital area, vertex and front, with highest point opposite center of eyes. A pair of vertexal foveae on a line through second row of ocular facets ; these foveae very small, with a diameter one-half that of an ocular facet. No postantennal incisure visible from above ; laterally this incisure is seen as a very short, vertical, vestige about as Jong as two ocular facets. Front steeply declivous and subvertical between antennae, ending abruptly, near the ventral margins of antennal acetabulae, as a truncate margin with an infolded edge, and bearing a minute median tubercle. Clypeus abnormal ; separated from front by a deep, narrow, transverse cleft ; clypeus medianly elevated into a transverse tubercle from the apex of which arises a pair of yellow, divergent, acute spiniform setae (or setiform spines) . Labrum transverse and very thick dorsoventrally. Mandibles large ; right crossed dorsal to left. Maxillary palpi as for subgenus. Ventral surface of head with the median fossa short, deep, almost as wide as long and hence subcircular (in marked contrast to the usual elongate-fusiform fossa of the genus) .

Antennae ten-segmented, slender, simple ; segment I elongate ; II elongate-oval, narrower and shorter than first ; III, IV, V, VI and VII all subequal in width, regularly decreasing in length so that the seventh is half the length of the third, all much narrower than the second and all with rectangular profile, riot at all moniliform ; VIII as long as wide, longer and wider than seventh ; subtrapezoidal ; IX elongate, subobconical, twice the length of eighth ; X elongate, nearly three times the length of ninth, and nearly as long as the preceding four segments united, with the usual apical pubescent sinuation of ventral face.

Pronotum trifoveate at base ; a small median fovea with a diameter less than that of an ocular facet, and a large lateral fovea each side with a diameter equal to two ocular facets.

Elytra as in *fletcheri.*

Abdomen with exceptionally strong margins, accentuated by a deep depression on each side of first tergite near apex ; five tergites in a length

ratio of 4.5/1.5/1/1/1 with last tergite peculiar : transversely subreniform, with a deeply subcircular arcuation of apical margin, and the surface of this tergite coarsely punctate and transversely foveoid just behind apical margin. First tergite with a pair of weak basal carinae one-fourth the segmental length and separated by slightly less than half the segmental width. Five sternites in a median length ratio of 4/.1/.3/0/1 ; that is, the first and third project medianly over the second and fourth. Last sternite medianly subcircularly extended. First sternite with a large circular foveoid depression on each side.

Metasternum medianly broadly sulcate.

Legs with the femora uninflated. Intermediate trochanters bearing a short, thick spine near apex ; intermediate tibiae with a short apical spine which projects from the ventral face at nearly right angles to the tibial axis.

This species belongs in Group I and is named in honor of P. P. Babiy who collected it at light on the night of May 24, 1927 at Moengo, Boven, Cottica R., Dutch Guiana. Described from a unique male, the type (Cornell U. Type No. 2221).

Decarthron (Decarthron) drasipalpum **new species**

Type male. Measurements : head 0.23 x 0.33 mm.; pronotum 0.30 x 0.33 mm.; elytra 0.5 x 0.73 mm.; abdomen 0.33 x 0.59 mm. ; total length 1.4 mm.

Reddish brown, strongly shining with sparse, flavous, long pubescence. The setae tend to be semierect and due to their unusual length (0.134 mm. to 0.16 mm.) give a shaggy appearance to the body. The glistening integument is almost impunctate save for the elytra.

Head with posterior portion of vertex evenly elevated. A pair of widely spaced vertexal foveae ; each fovea separated from the adjacent eye by the diameter of an ocular facet. Eyes notably large, hemiovate from dorsal view, with large, 'coarse facets. Tempora short, oblique. Antennal tubercles well-developed, separated by a flat-bottomed, longitudinal impression ; on posterior surface of each tubercle is a large, oblique, suboblong, setose postantennal incisure. Front simply declivous. Clypeus simple. Ventral surface of head with well-developed acute-oval median fossa characteristic of genus. Maxillary palpi very unusual for the genus ; these organs formed as in subgenus *Paradrasinus* of the genus *Drasinus* (Pl. III, 4) .

Antennae ten-segmented, simple, segments all longer than wide ; segment I subcylindrical ; II obconical, smaller ; III, IV, V, VI slightly narrower and shorter than second, obconical-ovate ; VII shortest antennal segment, obconical, as wide as sixth but shorter ; club of next three, VIII obconical, slightly longer than seventh ; IX slightly longer than

wide, larger than eighth, obtrapezoidal ; X large, as long as preceding three united, basally truncate and otherwise fusiform with the usual glandular-pubescent incisure at apicomesial third.

Pronotum subhexagonal with three nude antebasal foveae and base with marginal row of large, quadrate punctures.

Elytra with simple flanks ; each elytron with two nude basal foveae, entire sutural stria, and deep, broad discal stria reaching nearly to apical three-fourths.

The membranous wings are long (1.9 mm.) , well-developed and longer than the body, with a single fringe of alar setae (0.04 mm. long) on the posterior (mesial) margin.

Abdomen with five visible tergites and sternites. Tergites in a length ratio of 4.5/.5/.5/.5/1 with the first forming most of the abdomen from a dorsal view.

The first tergite requires special notice. It is narrowly but deeply margined and has a pair of strong, straight, slightly *convergent* discal carinae which are separated at apex by half the segmental width and basally separated by a wide, deep, glandular-pubescent fossa. On the median fourth of the apical margin is a gentle concavity, with what appear, at superficial glance, to be two more or less matted tufts of normal pubescence on the apical margin of the impression. In several paratypes this impression was covered by a pearly secretion and it was thought that this complex might be more than chance accumulation of foreign materials. Consequently the first tergite was run up as a whole-mount (Park 1942, p. 8-11) . Under high magnification (Pl. VII, 1) the adjacent integument presented the normal picture of the pselaphid integument, with slender aciculate setae and their trichogenous fields set in a simple sclerotized matrix. The concave area alluded to was full of clusters of integumental glands as demonstrated by their long, often parallel, striaform ducts. Within these clusters were long specialized setae with ovate-capitulate ends having an oblique apex. This specialized area as a whole is obsolete in the female sex.

Such an organized field, together with the visible pearly secretion mentioned, suggests that this area is glandular (Imms, 1924 ; Snodgrass, 1935) . I suggest that the secretion exudes from the gland clusters and spreads over the shafts of the special setae, thus aiding in its diffusion. This further suggests an aromatic secretion, similar to, but at a lower level of integration than, that of the trichomes of the clavigerines. Not too much information on the chemical nature of the secretion is available. It is not completely water-soluble in the usual sense, since specimens marked for dissection were first softened in water brought to the boiling point. The secretion is apparently precipitated by 95 per cent ethyl alcohol. This appears to suggest a similar chemical nature to

that secretion which exudes from the long sulcus on the mesial face of the maxillary palpi of *Hamotus*. The reaction of the secretion to alcohol, and then to water, is consistent with the belief that the secretion may be an aromatic substance not wholly soluble in either. Such aromatic compounds are well known, but the micro-biochemistry neces sary to further such an investigation awaits more peaceful times and skill not possessed by the writer.

Sternites in a length ratio of 4/.3/.3/.3/1, of simple form with the last with concave apical margin, closely investing the apical margin of the subvertical last tergite.

Metasternum deeply, broadly, longitudinally impressed between subtuberculate walls. Sternal foveae II, IV and VI large and glandular-pubescent. Intermediate coxae normally separated and posterior coxae normally widely separated. Legs long, very slender, simple.

Described on 29 specimens, the type (Cornell U. Type No. 2222) and 28 paratypes, all from Moengo, Boven, Cottica R., Dutch Guiana between May 12 and May 28, 1927, at light at night by P. P. Babiy.

The females have a less impressed metasternum and a relatively smaller distal antennomere but these differences are not pronounced. In fact, secondary sexual characteristics were so poorly developed in the species that direct dissection was necessary to fix the sex of the type. This led to a study of the aedeagus and several paratypes were also dissected and the aedeagus was studied both from point and slide mounts.

The aedeagus of *Decarthron* has not been described previously and the following remarks are pertinent. In *drasipalpum* the aedeagus is very flat, measuring 0.247 mm. long x 0.174 mm. wide x 0.067 mm. deep. This is in sharp contrast to the aedeagus of *Rhinoscepsis* discussed previously, and the wafer-like dimensions must be co-adapted to a low, broad bursa copulatrix in the female. Again, there appears. to be a pretty correlation between terminal (pygidial) sternites and the shape of the aedeagus. Thus in *Rhinoscepsis* the aedeagus is very deep, and the seventh sternite is divided so that each half swings outward to allow extrusion ; in *Decarthron* the aedeagus is very shallow, and the fifth sternite and fifth tergite swing apart vertically to form a slender, transverse extrusion orifice.

In *drasipalpum* the aedeagus is relatively primitive when contrasted with that of euplectine genera, but slightly more advanced when contrasted with that of *Reichenbachia* (Park, 1942, PI. I, 2, 3). This suggests again that euplectines are generally more specialized than brachyglutines, and second, that *Decarthron* is a specialized genus in its own tribe—a conclusion wholly in keeping with other data. The aedeagus of *drasipalpum* (P1. VII, 2) is essentially bilaterally symmetrical, with a broad median lobe and on each basal lateral angle

(morphological anterior end) is a lateral lobe bearing two long acicu late setae. The presence of the lateral lobes is primitive ; that is, staphylinoid. The apical (morphological posterior) end bears a short, median, fixed stylus. What is believed to be the ejaculatory duct lies in a long median stylus which arises near the basal end, but is asymmetrically oriented apically. Thus in three males dissected this ejaculatory stylus emerged to the morphological right of the median stylus.

This species is a member of Group II. Its study served to remind the author how instructive such a relatively simple species could become. In a genus where the male sex .is usually extravagantly modified, the glandular field of the first tergite, with the associated special setae of *drasipalpum* more than repaid detailed examination.

In this connection, and from a purely theoretical viewpoint, one wonders if such glandular fields and associated structures and functions are not of considerable selection value. That is, although most of the Pselaphidae lead an essentially predaceous, nocturnally active life in and about forest floor, quite a few species are adjusted to the social medium of ants and termites. In the symphilic groups, such as the clavigerine and attapsenine genera, the special glandular pubescence or trichomes, appear to have a positive value for their possessors. It is possible that *drasipalpum* may be associated with ants. If this is the case, then such relatively simple glandular areas as described would be of positive selection value if such a stock mutated in a myrmecocolic direction. In other words, the normal pselaphidous structure includes, in generalized form and function, those numerous features which attain such bizarre development in the true guest species. By this is not necessarily meant preadaptation in any anthropomorphic sense, but instead a plentiful array of structures which, through mutation and subsequent selection by the environment, may be developed into remarkable appendages, foveae, secretions and so on, so frequently observed in this family of beetles.

***Decarthron (Decarthron) dietrichi* new species**

Type male. Measurements : head 0.37 x 0.37 mm. ; pronotum 0.33 x 0.40 mm. ; elytra 0.53 x 0.74 mm. ; abdomen 0.40 x 0.67 mm. ; total length 1.63 mm.

Orange brown with a dull gloss ; pubescence golden brown by transmitted light, abundant, strongly recurved, 0.067 mm. long.

Head rounded-trapezoidal with moderately prominent, coarsely faceted eyes, a little more than twice the length of tempora. Vertex convex, with a pair of small vertexal foveae on a line through the third row of ocular facets ; each fovea about the size of an ocular facet, but not conspicuous from a dorsal view, since the orifice of each fovea is

at nearly right angles to the surface of the vertex, and the vertex is depressed in front of each fovea. Sides of head with the usual post-antennal incisure extending from the dorsal surface ventrally, in contact with the anterior margin of the eye, to a point behind the base of the mandible. Front simple, slightly declivous, with a pair of weak foveal impressions, one mesiad of each antennal tubercle. Clypeus simple, at nearly right angles to the front. Labrum small and simple. Mandibles large, left crossed dorsal to right. Maxillary palpi four-segmented, as for subgenus ; first segment small, obconical, 0.02 mm. long ; second curcurbiform, arcuate-pedunculate, 0.09 mm. long; third transversely triangular, external face strongly rounded, internal face acute, 0.04 mm. long; fourth elongate-ovate, apically acute, obliquely truncate at base, 0.13 mm. long. Ventral surface of head as for genus, having a large, acute-ovate median fossa, with sharply carinated margins.

Antennae ten-segmented, abnormal ; segment I slightly elongate ; II elongate, as long as first but slightly narrower ; III, IV, V and VI forming a geniculation, these four subequal in length and all longer than wide, the third and sixth subtriangular with their dorsomesial faces produced and apically subacute, the fourth and fifth simple and elongate, subequal in length and width ; VII elongate-conical, shorter and narrower than sixth ; VIII regularly obconical, longer than seventh, shorter than sixth ; IX of same shape as eighth but wider and longer, nearly as long as third and fourth united ; X 0.20 mm. long by 0.09 wide, as long as preceding two united, truncate at base, bluntly acute at apex, with the usual pubescent sinuation in apical third of ventral face. Antennae 0.87 mm. long, all segments longer than wide (Pl. I, 2).

Pronotum rounded-hexagonal, with a simple unifoveate base.

Elytra coarsely punctate; flanks simple ; each elytron bifoveate, with inner fovea at origin of an entire sutural stria, and outer fovea at origin of a discal stria which varies from slightly less than two-fifths (in type) to nearly one-half of the total elytral length.

Abdomen with five tergites in a length ratio of 5/1.2/1/1.4/1.5, fifth very transverse and normally punctate, with a broadly rounded apical margin. First tergite with a pair of strong discal carinae separated by one-half the total segmental width, and half as long as segment. Five sternites in a median length ratio of 4/.7/.4/.4/.8 ; fifth sternite strongly, medianly depressed at base.

Metasternum with the surface covered medianly by a dense mat of short, silvery pubescence.

Legs with tarsi as for tribe, tri-segmented, with the first very short and the last two relatively long, the third bearing a single claw; typically brachysceline. Anterior femora unique in the subgenus, with a slightly inflated dorsal face which is strongly compressed longitudinally in distal

half into a strong carinoid ridge. Intermediate femora greatly swollen, deeply excavated at apical three-fourths of dorsal face, with the basal margin of the excavation armed with a spine and the apical margin not spined. Posterior femora simple. Trochanters and tibiae simple, with the latter bearing the usual pubescent patch near apex of ventral face ; anterior tibiae with spatulate spurs, intermediate tibiae with acute spinoid spurs.

Described on 97 males, collected by P. P. Babiy at light at night as follows : type (Cornell U. Type No. 2223) and 92 paratypes between May 12 and May 28, 1927 at Moengo, Boven, Cottica R., Dutch Guiana ; 2 paratypes April 22, 1927 at Zanderij, Boven, Para Dist., Dutch Guiana ; 2 paratypes June 24, 1927 at Mackenzie, Demerara R., British Guiana.

I am pleased to name this distinctive species in honor of Professor Henry Dietrich of Cornell University. It is a member of Group VI, and has no allies. Zoogeographically the species is of interest in that it is distributed along quite a section of the northeast coast of South America, and should be looked for in French Guiana and Venezuela.

***Decarthron (Decarthron) fletcheri* new species**

Type male. Measurements : head 0.27 x 0.33 mm.; pronotum 0.30 x 0.37 mm. ; elytra 0.50 x 0.60 mm.; abdomen 0.43 x 0.56 mm. ; total length 1.5 mm.

Orange brown, with paler anterior and intermediate femora ; pubescence relatively coarse and abundant, 0.067 mm. long ; integument moderately shining.

Head rounded trapezoidal, with coarsely-faceted eyes four times the length of tempora. Vertex convex, with a pair of vertexal foveae each having the diameter of two ocular facets, and placed on a line passing through third row of ocular facets. Front, frontal foveal impressions and clypeus as for *dietrichi.* Maxillary palpi as for subgenus. Ventral surface of head as for genus.

Antennae ten-segmented, abnormal ; segment I elongate ; II ovoidal, as wide as, but shorter than first ; III basally pedunculate-columnar, apically moniliform ; IV, V and VI ovoidal, with their lateral faces simple, and their mesial faces slightly but evenly produced, these segments wider than third, and the fifth very slightly narrower than fourth or sixth; VII distinctly transverse, with a simple lateral face and a strongly produced and apically angulated mesial face, distinctly wider than sixth or eighth ; VIII simple, transverse, slightly shorter and much narrower than seventh ; IX twice as long as eighth and gradually broader apically; X with the usual pubescent apical sinuation on ventral face,

PLATE I

1. *Decarthron fletcheri* n. sp. Male intermediate femur, posterior face.
2. *D. dietrichi* n. sp. Male antenna, dorsal face.
3. *D. dietrichi* n. sp. Male anterior femur, dorsal face; 3a. detail of carina on anterior femur.
4. *D. wilhelminae* n. sp. Male anterior femur, posterior face.
5. *D. wilhelminae* n. sp. Male intermediate femur, posterior face.
6. *D. guianensis* n. sp. Maxillary palpus, ventral face (typical of subgenus).
7. *D. guianensis* n. sp. Male anterior femur, dorsal face. Dorsoventral inflation not apparent from this view, but is well shown from lateral view.
8. *D. guianensis* n. sp. Male anterior femur, posterior face.
9. *D. guianensis* n. sp. Male intermediate femur, posterior face.
10. *D. guianensis* n. sp. Detail of head between antennal acetabulum and eye, showing the six vestigial remnants of the postantennal insisure (1-6) . Note the characteristic articulation of the pselaphid antenna to head by a dorsal flexure of the first antennomere.

PLATE I

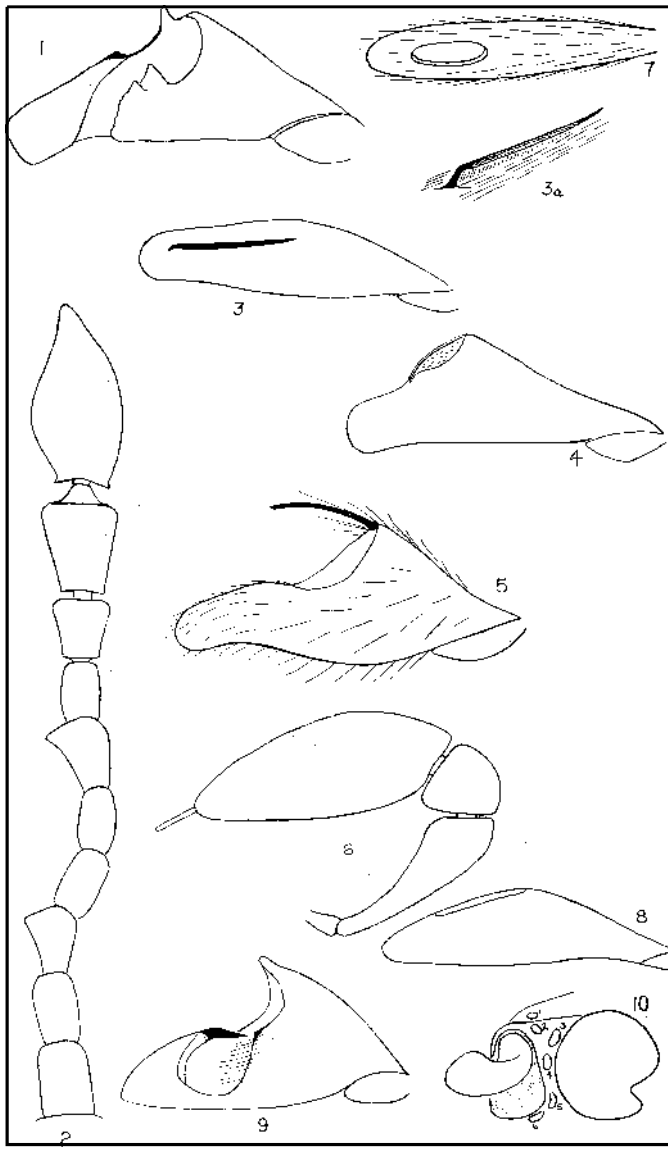


PLATE II

1. *Decarthron surinamensis* n. sp. Male intermediate femur, posterior face.
2. *D. surinamensis* n. sp. Male antenna, dorsal face.
3. *D. collifemur* n. sp. Male anterior femur, posterior face.
4. *D. asymmifemur* n. sp. Male intermediate femur, anterior face.
5. *D. asymmifemur* n. sp. Male intermediate femur, dorsal face.
6. *D. asymmifemur* n. sp. Male intermediate femur, posterior face.
7. *D. monoceros* (Schaufuss) . Maxillary palpus, either sex, ventral face (typical of subgenus). Drawn to same scale as figure 6, Pl. 1.
8. *D. monoceros* (Schaufuss). Detail of head between long frontoclypeal horn and eye. Note the single, large postantennal incisure *(a)*, the diagnostic tumulus on the ventral surface of the first antennal segment, and the horn. Drawn to same scale as figure 10, Pl. I to show differences between the subgenera *Decarthron* and *Decarfuss.*
9. *D. monoceros* (Schaufuss). Distal segment of the maxillary palpus, dorsal face, showing the palpal carina.
10. *D. monoceros* (Schaufuss). Aedeagus (0.214 x 0.134 x 0.067 mm.) apical (morphological posterior) end to right.

PLATE II

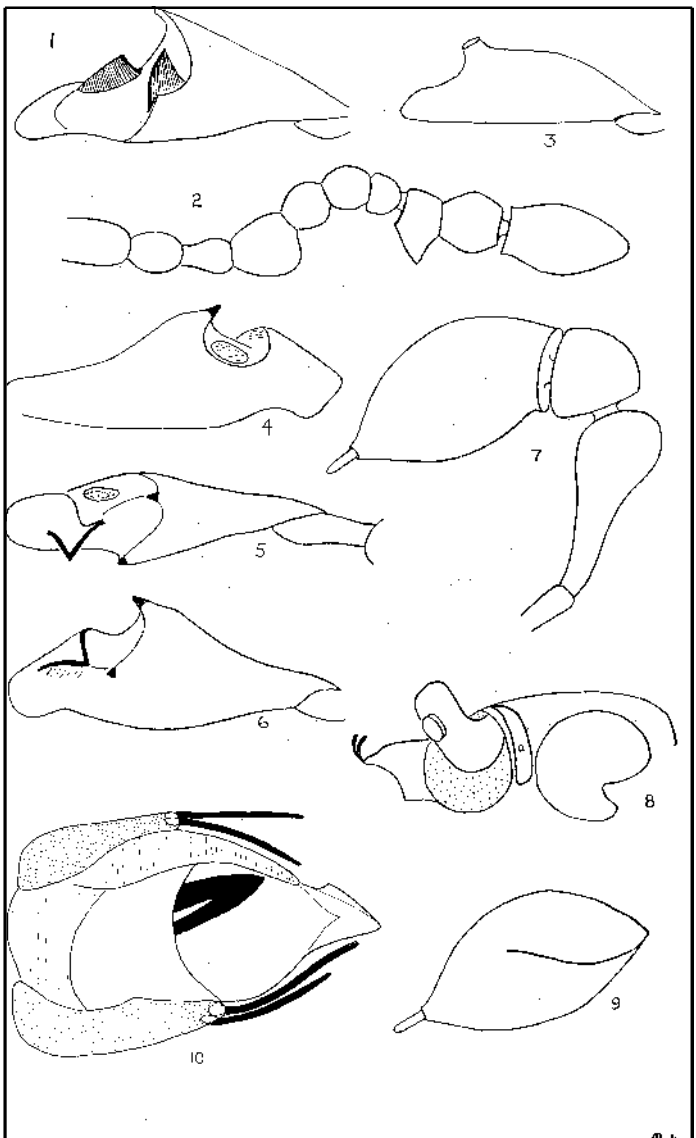


PLATE III

1. Infraspecific variation in *Decarthron monoceros* (Schaufuss).
   a. Known limits of the population, from Panama on the west to Dutch Guiana on the east, a cross-country distance of nearly 2000 miles.
   b. *D. monoceros monoceros* (Schaufuss), known only from Dutch Guiana. Head of male.
   c. *D. monoceros euspinifrons* Park, known only from the Canal Zone. Frontal horn of male. See discussion in text.

2. *Bythinoplectus impressifrons* Raffray. Lateral view of head of male. Peculiar maxillary palpi (II, III, IV) stippled. *a.* genal beard, *b.* cardo, *c.* mandibles, *d. d.* clypeal lamina, *e.* anteroventral tubercle, *f.* posterodorsal tubercle.

3. *B. impressifrons* Raffray. Dorsal view of head of male. *a.* genal beard. Note that maxillary palpi fill the large palpal fossa. The clypeal lamina is seen between antennal bases.

4. Maxillary palpus of *Drasinus cisinsularis* Park and *Decarthron drasipalpum* new species.

PLATE III

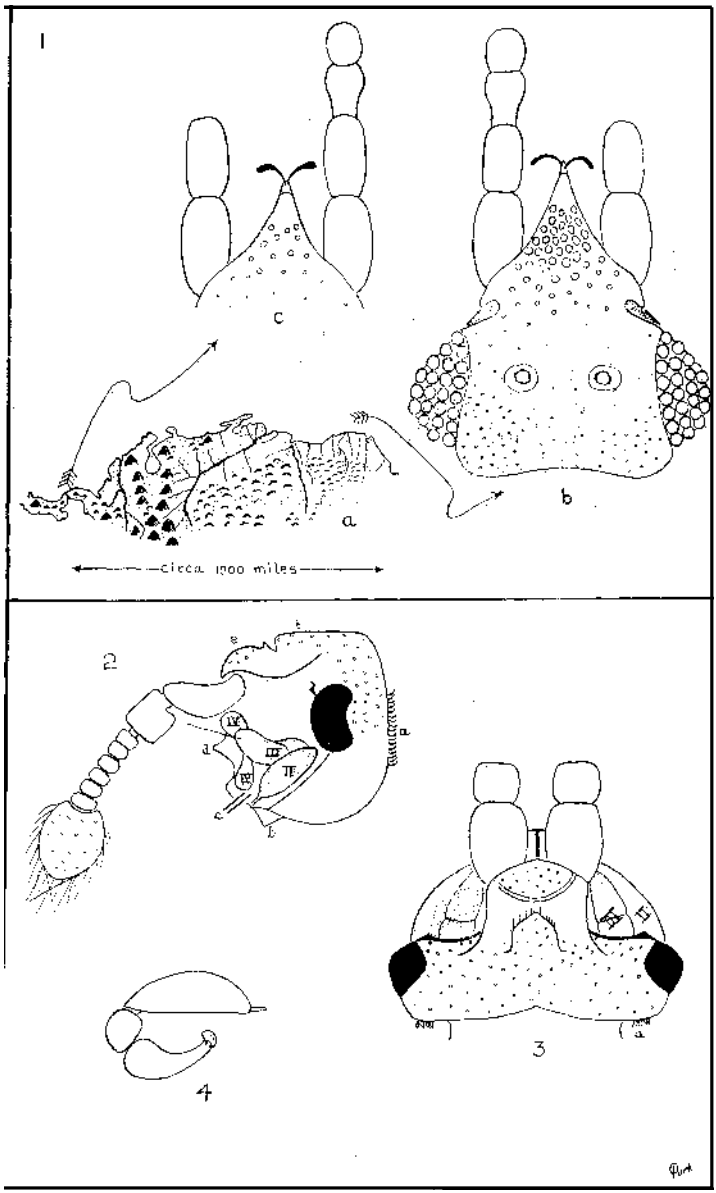


PLATE IV

The present distribution of *Rhinoscepsis (Rhinoscepsis)* on available data, showing the relatively discontinuous positions of the vestigial-eyed species *(bistriatus* and *dybasi)* and the ¨large-eyed" species *(falli, gracilis, militaris, pubescens,* and *richteri).* The eye is shown in each case with the ventral surface to the right, and the anterior surface to the top of the page. See discussion in text.

PLATE IV

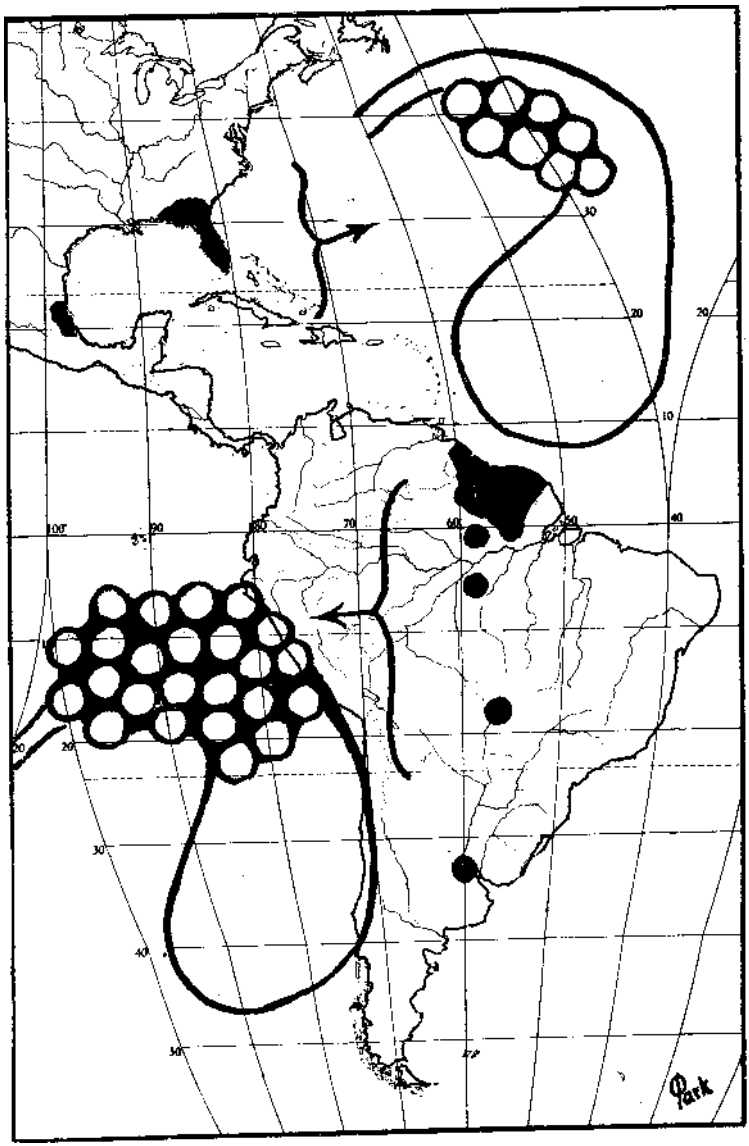


PLATE V

1. *Thesiastes ramtus* n. sp. Dorsal surface. The minute body pubescence not shown; pubescent foveae with pubescence stylized; elytra slightly broadened to show subhumeral fovea; abdomen lengthened to show the median depression of first visible tergite.

Rhinoscepsis militaris (Schaufuss). Left mandible..

R. militaris (Schaufuss). Pronotum, without pubescence.

R. militaris (Schaufuss). Right metathoracic coxal-trochantal-femoral complex of male, illustrating the trochantal appendage.

R. militaris (Schaufuss). Sixth and seventh sternites of male.

R. species. Sixth and seventh sternites of male.

R. militaris (Schaufuss). Ventral view of head, to illustrate the typical expanded genal portions of the cephalic sulci of the subgenus. Contrast with same area of figure 1, Pl. VI.

R. militaris (Schaufuss). Aedeagus, morphological dorsal surface (0.30 x 0.13 mm.).

R. militaris (Schaufuss). Aedeagus, morphological right lateral surface (0.30 x 0.17 mm.).

PLATE V

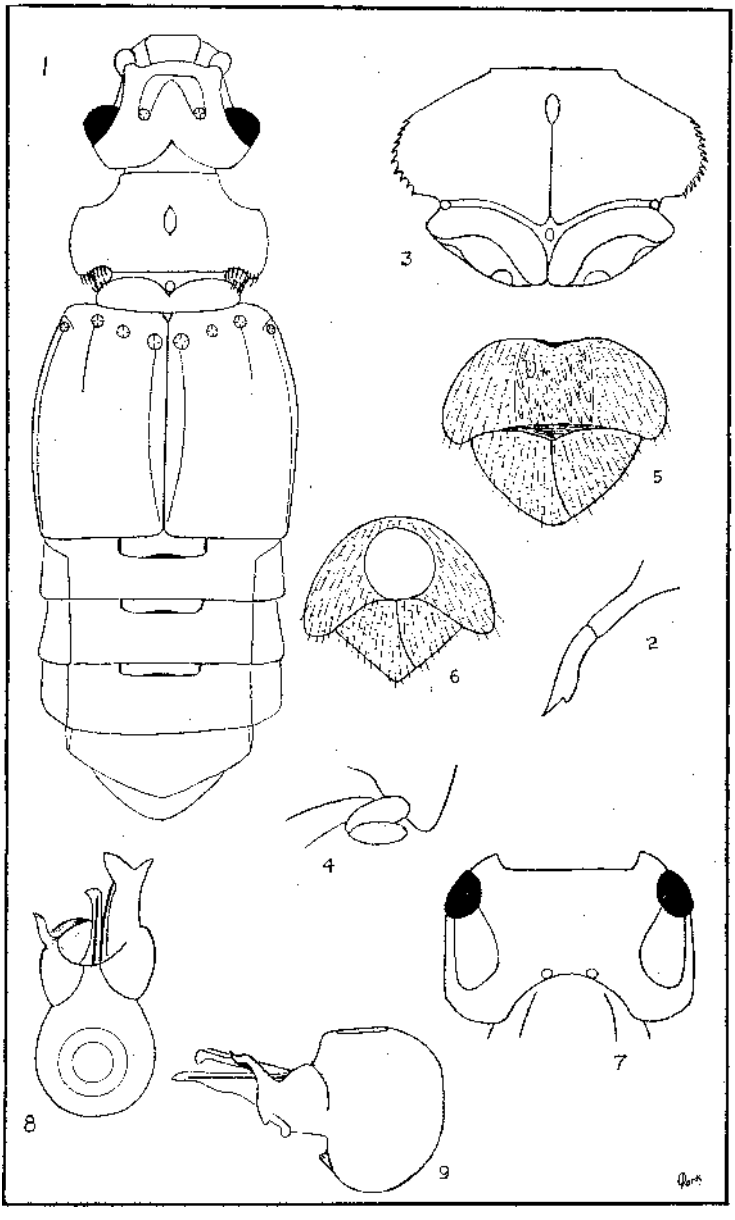


PLATE VI

Rhinoscepsis (Rafrhisis) orbis new subgenus and new species. Dorsal surface to left; ventral surface to right. Eye, tarsus and maxillary palpus illustrated separately at much greater magnification. For subgeneric di vergence contrast this plate with figure 3 and figure 7, Plate V, for lateral pronotal margin and ventral surface of head of a typical *Rhinoscepsis.*

PLATE VI

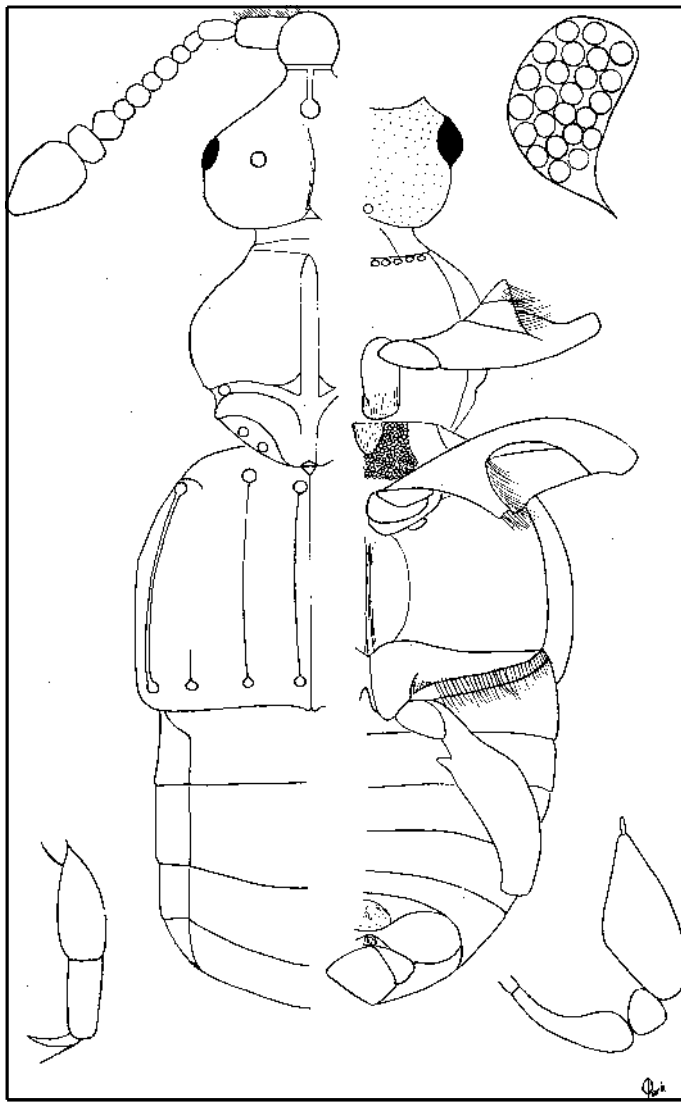


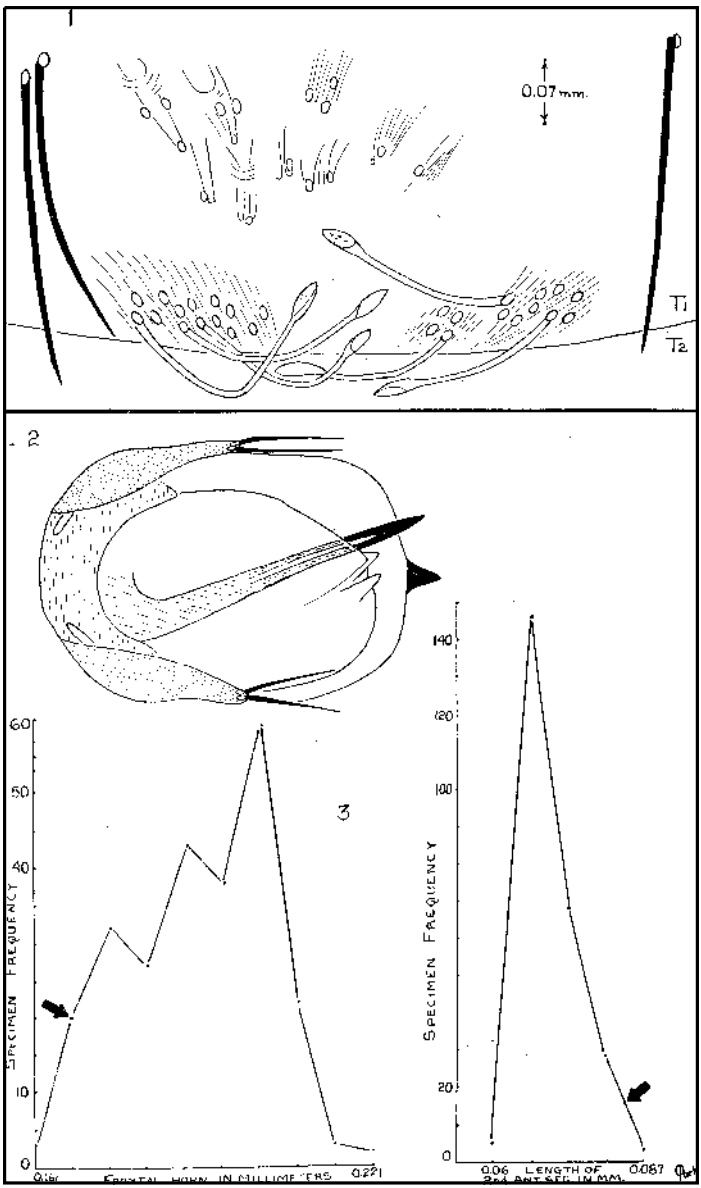
PLATE VII

1. *Decarthron drasipalpum* n. sp. Median apical area of first visible tergite of male. T1, T2 first two tergites Normal aciculate setae in solid black; peculiar capitulate setae and the associated glandular field, with minute ducts and trichogens illustrated. See discussion in text.

2. *D. drasipalpum* n. sp. Aedeagus (0.247 x 0.174 x 0.067 mm.) apical (morphological posterior) end to right.

3. *D. monoceros* (Schaufuss). Variation in 250 males from Dutch Guiana *(m, monoceros)* in length of frontal horn, and in length of second antennal segment. Articulation with Panama population *(m. euspinifrons)* indicated by black arrow. See discussion in text.

PLATE VII


1
0.07 mm.
T1
T2
2
3
SPECIMEN FREQUENCY
0.06 LENGTH OF 3rd ANT. SEG. IN MM.
0.087

slightly wider than ninth and slightly longer than the two preceding segments united.

Pronotum with a single antebasal fovea ; this fovea is median and has a diameter of an ocular facet.

Elytra as for *dietrichi* save that the discal stria is half the elytral length.

Abdomen with five tergites in a median length ratio of 4/1.5/1/.8/1.8 with the first equipped with a pair of strong, parallel basal carinae two-fifths the segmental length, and separated by slightly less than half the segmental width. The fifth tergite obtusely triangular. Five sternites in a median length ratio of 3/.5/.5/.1/1 with the fourth clearly visible laterally but nearly invisible medianly ; fifth sternite with a bisinuate apical margin and a distinct median basal depression.

Metasternum strongly convex on either side of a slight, median longitudinal depression.

Legs with simple coxae, trochanters, tibiae and tarsi. The anterior femora with an inflated dorsal face which bears an elongate-oval, sub granular elevation upon a glabrous, oval depression at apical three-fourths this elevation nearly parallel to dorsal face, being sightly inclined anteriorly.

Intermediate femora (P1. I, 1) with inflated dorsal face, this inflation strongly excavated on posterior face, the excavation is walled anteriorly by a laminoid crest which is produced basally into a strong conical spine, and apically into a triangular laminoid ridge ; the basal spine arises below the high point of the dorsal inflation ; the excavation is deep and sinuous and medianly is interrupted by two conical teeth which arise, one above the other, from the ventral wall of the excavation.

Anterior tibiae with spatulate spurs.

Described on 22 males, collected by P. P. Babiy at light at night : type (Cornell U. Type No. 2224) and 21 paratypes between May 12 and May 28, 1927 at Moengo, Boven, Cottica R., Dutch Guiana.

It is a pleasure to name this species in honor of Dr. Frank C. Fletcher. It is a member of Group VI, and within this assemblage has two allies, both from Mexico, namely *quadrifoveatum* Fletcher (1928, p. 222) from Veracruz, and *sandersoni* Park (1944) of Guerrero. From both of these species it differs, among other things, in the structure of the male intermediate femora.

Decarthron (Decarthron) wilhelminae new species

Type male. Measurements : head 0.28 x 0.37 mm. ; pronotum 0.33 x 0.39 mm.; elytra 0.53 x 0.67 mm.; abdomen 0.33 x 0.63 mm.; total length 1.5 mm.

Shining reddish-brown, with paler elytral disc, legs, palpi and antennae ; pubescence. relatively sparse, fine, from 0.067 mm. (elytra) to 0.10 mm. (abdomen) .

Head transversely trapezoidal, with very coarsely-faceted eyes four times as long as tempora. Vertex convex, with a slight median depression near occiput ; a pair of vertexal foveae on a line through third row of ocular facets, each fovea with a diameter of one ocular facet but appearing much larger since each lies in a distinct, broad depression ; these two perifoveal depressions continued apically to a point opposite the large postantennal incisure, but not uniting with each other. Front simple, slightly declivous, merging into the simple, abruptly subvertical clypeus. Labrum simple. Mandibles large, relatively long and deeply crossed.

Maxillary palpi relatively more inflated than is usual in the subgenus *Decarthron*, approaching the subgenus *Decarfuss* in this feature ; third segment slightly elongate (0.067 x 0.053 mm.) but of usual shape, with semicircular external face and angulate internal face ; fourth segment with very bluntly rounded apex (0.10 x 0.067 mm.) . An interesting feature is a single, conspicuous seta on the ventroexternal face of third segment, near apex. This is a large, arcuate, flavous seta which is about 0.10 mm. long, and curves over fourth segment nearly to middle of Tatter's length.

Ventral surface of head as for genus.

Antennae ten-segmented, abnormal; segment I elongate; II slightly narrower and distinctly shorter than first, quadrate ; III slightly narrower and distinctly longer than second, basally columnar, apically ovoidal ; IV, V and VI subequal in length to third, the fourth with simple lateral face and a distinctly but evenly produced mesial face so that the fourth segment is patently wider than either the third or fifth, fifth segment and sixth ovoidal, simple ; VII dorsally quadrate, but with the ventral face truncately produced, giving it a dorsoventral width equal to the lateromesial width of the fourth segment ; VIII distinctly transverse, with the ventromesial face produced, wider than seventh ; IX one-half wider than long, trapezoidal, larger than eighth ; X as long as two preceding segments united, slightly wider than ninth, with the usual pubescent apical sinuation of ventral face.

Pronotum transverse, rounded-hexagonal, with a simple unifoveate base ; this fovea *per se* smaller than an ocular facet, but set in a large depression so that it appears much larger.

Elytra as in *fletcheri.*

Abdomen with five tergites in a median length ratio of 5.5/1.5/1/1/1 with first having a pair of strong divergent basal carinae half the segmental length, and apically separated by nearly two-thirds the segmental width. Five sternites in a median length ratio of 4/.1/.2/.2/.4 with last medianly depressed.

Metasternum as in *fletcheri.*

Posterior legs simple. Anterior and intermediate coxae, trochanters, tibiae and tarsi simple. Anterior femora (Pl. I, 4) strongly inflated in the dorsoventral axis, with the dorsal face abruptly arcuate-sinuate in apical third ; the oblique surface formed by this sinuation is strongly inclined posteriorly, and on this inclined surface is an elongated-ovoidal, granulate area (reminiscent of the stigmal plates of certain ixodid ticks) ; this granulate area with a sharply carinated anterior margin.

Intermediate femora even more strongly inflated dorsoventrally, and abruptly arcuate-sinuate in the apical half ; this glabrous sinuation is not excavated, but bears at its basal limit a bizarre spine ; this spine is arcuate, tubular, and exceptionally long (0.12 mm.) , whitish and setiform and is partially obscured by the long whitish setae of the integument (Pl. I, 5) . One can not help speculating as to its function ; that is, if it conducts a secretion utilized in sex attraction ; in the absence of either cytological or experimental data no opinion can be safely held. It should be remembered that other species of the subgenus frequently have male intermediate femoral excavations armed with basal spines, and that at least two of these have been examined from slide mounts and the spines shown to be tubular *(noctiphoton* Park of Panama, and *quadrifoveatum* Fletcher of Veracruz) ; further, *noctiphoton* has the basal spine equipped with what appear to be ancillary canals (cf. Fletcher, 1928 ; Park, 1942, P1. XVI, 5) . In such species these basal spines are relatively short, whereas in *wilhelminae* this setiform spine (or spiniform seta) is of spectacular length.

Allotype female. As for holotype save that the antennae and legs are simple.

The species has long, well-developed wings. These organs are 1.5 mm. long, with the posterior (mesial) margin fringed with the usual alar setae (0.04 to 0.07 mm. long) .

This species is named in honor of Queen Wilhelmina of the Netherlands. It is described on 34 specimens : holotype (Cornell U. Type No. 2225) , allotype, 10 male paratypes and 22 female paratypes. The specimens were obtained at light at night, between April 18 and April 26, 1927 by P. P. Babiy at Zanderij I, Boven, Para Dist., Dutch Guiana. It is a member of Group VI and has no close allies.

***Decarthron (Decarthron) guianensis* new species**

Type male. Measurements : head 0.27 x 0.37 mm. ; pronotum 0.27 x 0.37 mm.; elytra 0.50 x 0.67 mm.; abdomen 0.43 x 0.64 mm. ; total length 1.5 mm.

Shining, reddish-brown with long (0.08 to 0.1 mm.) yellowish pubescence. This is a relatively thick-set species, with head and pronotum equal in length and width.

Head with prominent coarsely-faceted eyes three times as long as tempora. Convex vertex with a pair of vertexal foveae, each with a diameter of an ocular facet, on a line through fourth row of ocular facets, each fovea in a perifoveal impression which is extended apically as in *wilhelminae.* Postantennal incisure peculiar ; each incisure dorsally surrounded by a band of integument so that dorsally the incisures appear to be a pair of large pubescent postantennal foveae, and laterally each appears as a pair of foveae behind each antennal tubercle. Front depressed between antennal tubercles, and then giving way to the abruptly subvertical, simple clypeus. Mandibles moderate, simple, left crossed dorsal to right. Maxillary palpi as for subgenus (Pl. I, 6) . Ventral surface of head as for genus.

Antennae ten-segmented, abnormal ; segment I elongate ; II elongate, as wide as first but shorter ; III subobconical, as long as second but narrower ; IV, V, VI subequally long and wide, slightly shorter than third and about as wide, simply ovoidal ; VII slightly transverse, simple ; VIII forty per cent wider than seventh, very transverse with a simple lateral face, but an angulated and strongly produced mesial face ; IX transverse, regularly trapezoidal, larger than eighth ; X nearly as long as preceding three united, with the ventral face as in *wilhelminae.*

Pronotum, elytra and metasternum as in *fletcheri.*

Abdomen with five tergites in a length ratio of 4/1/1/1.3/1.5 with the first having a pair of subparallel basal carinae one-half the segmental length and separated by slightly more than half the segmental width. Five sternites in a median length ratio of 3/.1/.2/.2/1 with the last, therefore, one-third as long as first, and bearing a transversely ovate, glabrous, foveoid depression in basal three-fourths.

Legs with anterior femora slightly inflated on dorsal face, with a long, oval, deep, glabrous excavation on the slight declivity of the dorsal face in apical three-fourths (P1. I, 7, 8) . Intermediate femora strongly inflated on dorsal face, this inflation abruptly and deeply excavated, the excavation continuing along the apicoposterior face ; basal edge of excavation with a short, blunt tooth ; posterior wall of excavation elevated medianly in a short laminoid crest ; the excavation asymmetrically divided by a high, oblique lamina arising from the dorsoapical face (Pl. I, 9) .

Described on 18 males, type (Cornell U. Type No. 2226) and 17 paratypes, collected by P. P. Babiy at light at night, between May 12 and May 28, 1927 at Moengo, Boven, Cottica R., Dutch Guiana.

This is a member of Group VI, allied to *arthriticum* Raffray, complicatum Fletcher, and *quadraticeps* Raffray, from Mexico and Guate-

mala; it differs from these species in antennae and male femoral structure.

The postantennal incisure has been neglected in pselaphid taxonomy. In *guianensis* it is not a simple furrow, but is largely closed, leaving six foveae, or foveae with transparent covers, in its line of invagination. The two dorsalmost of these have been noted in the description of the head, and the others are seen in a strictly lateral view between the eye and antennal acetabulum (Pl. I, 10) .

Decarthron (Decarthron) surinamensis **new species**

Type male. Measurements : head 0.23 x 0.31 mm.; pronotum 0.27 x 0.31 mm.; elytra 0.43 x 0.60 mm.; abdomen 0.28 x 0.53 mm.; total length 1.2 mm.

Moderately shining, dark reddish-brown with long, conspicuous pubescence ; punctulation very indistinct.

This is a short species, in the size range of *nanum* (Schaufuss) , with coarsely-faceted eyes slightly more than three times the length of the tempora. Convex vertex has a pair of vertexal foveae which are very small (half the diameter of an ocular facet) , but appear very large since each is set in a circular depression having the diameter of two ocular facets. A pair of weak foveal impressions present, one mesiad of each antennal tubercle, unconnected with each other or with the vertexal foveae. A small postantennal incisure on each side. Front and clypeus forming a continuous subvertical surface ; on the surface, between the antennal acetabulae, the pubescence is very short, silvery and appressed, and radiates symmetrically from a central, glabrous, circular area. (This forms an attractive pattern which at first glance appears to be a clypeal fovea.) Maxillary palpi as for subgenus. Ventral surface of head as for genus.

Antennae ten-segmented, abnormal, as illustrated (Pl. II, 2) , with segments IV, V, VI, VII and VIII forming a geniculation. Segment IV much larger than either third or fifth, with a strongly produced mesial face. Segment VIII asymmetrically transverse, with a strongly produced, angulate mesial face.

Pronotum unifoveate, this median fovea the size of an ocular facet.

Elytra with simple flanks ; each elytron bifoveate at base, with the inner at origin of entire sutural stria ; outer fovea at origin of a rather conspicuous discal impression which is broad and deep at base, but narrows rapidly to a stria extending to middle of elytron, and with several large foveoid punctures (as large as an ocular facet) scattered along the walls of this discal impression so that in oblique light this discal stria appears geminated.

Abdomen with narrow, inconspicuous margins ; with five tergites in a length ratio of 4/1/.8/.6/1.3 with first having a pair of divergent carinae separated apically by nearly half the segmental width, and nearly half as long as segment but very inconspicuous because of the pubescence. Five sternites in a median length ratio of 3.5/.1/.1/.2/.6 with last having a deep basal foveoid impression.

Metasternum triangularly concave medianly near apex.

Legs light yellowish-brown, with simple coxae, trochanters, tibiae and tarsi ; anterior and posterior femora perfectly simple and normal. Intermediate femora markedly abnormal (Pl. II, 1) , greatly inflated dorsal face deeply excavated at apical three-fourths ; this excavation armed at dorsobasal apex by a thin spine ; floor of excavation extending to ventral limit of posterior face, and supporting a high, slightly oblique lamina ; dorsoapical wall of excavation extended into the excavation on anterior wall as a free, very oblique lamina. Anterior tibiae with large boletiform spurs.

This species is described on a single male, the type (Cornell U. Type No. 2227) collected by P. P. Babiy at light at night, May 15, 1927 at Moengo, Boven, Cottica R., Dutch Guiana. It is a member of Group VI, but is very distinct in the antennae and intermediate femoral modifications.

Decarthron (Decarthron) collifemur **new species**

Type male. Measurements : head 0.23 x 0.31 mm.; pronotum 0.27 x 0.32 mm.; elytra 0.47 x 0.60 mm. ; abdomen 0.31 x 0.53 mm.; total length 1.3 mm.

Yellowish-brown, shining, with light yellow legs ; integument lightly punctulate ; pubescence long.

Head with relatively small, coarsely-faceted eyes, two times the length of tempora. Vertexo-occipital area strongly convex. Top of head with two pairs of foveae ; a pair of vertexal foveae, each free and as large as an ocular facet, placed on a line through the third row of ocular facets, and each fovea much nearer an adjacent eye than to the other vertexal fovea ; a pair of frontal foveae, each free and as large as an ocular facet, one behind and mesiad of each antennal tubercle, and these foveae very near each other. This gives the head a distinctive quadrifoveate pattern found in few species of the genus, where the frontal foveae are usually absent or weakly formed impressions. Postantennal incisure deep and triangular. Front and clypeus forming a simple, subvertical surface. Maxillary palpi as for subgenus. Ventral surface of head as for genus.

Antennae ten-segmented, normal ; segment I arcuate-elongate ; II ovoidal, nearly as wide but shorter than first ; III elongate, as wide as fourth, narrower than second, basally pedunculate, apically globular ; IV, V and VI ovoidal, subequal ; VII irregularly moniliform, as wide as sixth but shorter ; VIII trapezoidal, abruptly larger than seventh ; IX trapezoidal, abruptly larger than eighth ; X relatively blunt, twice as long as ninth but only slightly wider, with the usual apical pubescent sinuation of ventral face.

Pronotum and elytra as for *dietrichi.*

Metasternum medianly concave with subtuberculate walls.

Abdomen with five tergites in a length ratio of 4.5/1/1/.7/1 with first having a pair of parallel basal carinae nearly half the segmental length and separated by three-fifths the segmental width. Five sternites with a median length ratio of 3/.2/.2/.4/.6 with the last deeply foveoid at basal half.

Anterior femora and intermediate femora subequally inflated ; posterior femora simple. Anterior femora suddenly sinuate at apical fourth of dorsal face, this sinuation surmounted at basal edge by a prominent tumulus (Pl. II, 3) to give a novel outline. Intermediate femora slightly constricted at apical four-fifths, the dorsal edge of the constriction short, sinuate, carinoid ; without spines or excavations, but with a small, triangular scar with defined margins on anterior face just beneath the sinuate carinoid ridge. It will be noted that in *collifemur* the usually greatly modified middle femur is relatively simple, while the usually slighty modified anterior femur is greatly modified.

Described on one male, the type (Cornell U. Type No. 2228) taken by P. P. Babiy at light on the night of April 22, 1927 at Zanderij, Boven, Para Dist., Dutch Guiana. This species is a member of Group IX. It is unrelated to any of the species in this group, or in the closely allied Group VIII, as a consequence of the male modifications of the anterior and intermediate femora.

Decarthron (Decarthron) asymmifemur **new species**

Type male. Measurements: head 0.27 x 0.33 mm.; pronotum 0.23 x 0.32 mm. ; elytra 0.47 x 0.60 mm.; abdomen 0.24 x 0.53 mm. ; total length 1.3 mm.

Reddish-brown, strongly shining, with very long sparse pubescence, the abdominal setae measuring 0.134 mm. in length.

This is a well-marked species, with a pair of eyes just slightly less than three times as long as tempora, and with moderate sized facets. The head is strongly convex through the occipitovertexal area, with a pair of vertexal foveae on the declivous half of the vertex on a line through the second row of ocular facets; these foveae lie in a depressed

area of the vertex on each side near the eyes, and are separated by a convex strip of vertex which is continuous with the gently declivous front. Postantennal incisures well-developed. Front merging into the simple, subvertical clypeus. Maxillary palpi as for subgenus. Ventral surface of head as for genus.

Antennae ten-segmented, normal ; segment I and II as for *collifemur;* III, IV, V, VI elongate, gradually decreasing in length; third longer than second and subobconical ; fourth, fifth and sixth ovoidal ; VII shorter than sixth, as long as wide ; VIII larger than seventh, as long as wide ; IX larger than eighth, quadrate-trapezoidal ; X slightly wider than ninth, as long as preceding two united, with ventroapical face sinuate pubescent as usual.

Pronotum as in *wilhelminae.*

Elytra diagnostic ; flanks simple ; base of each elytron deeply bifoveate ; inner fovea at origin of a very deep, entire sutural stria ; outer fovea at origin of an equally deep, subentire discal stria which extends five-sixths of total elytral length. This discal stria gives a ribbed aspect to the elytra, an appearance very unusual in the genus, where shallow, relatively short discal impressions prevail.

Abdomen equally different from most species of the genus, being very short and having the segments strongly deflexed ventrally, the five tergites having a length ratio of 3.5/1/.7/1.3/1 with the first holding a pair of parallel basal carinae one-third the segmental length and separated by slightly more than one-half the segmental width. The five sternites greatly contracted, with a median length ratio of 1.5/0/.2/.2/.5 with the last small, rounded-triangular as in many male *Arthmius.*

Metasternum medianly, transversely tumid and covered by a dense mat of short, stiff setae.

Posterior legs unusually slender.

Anterior femora slightly inflated, each femur with a short, oblique carinoid edge in apical three-fourths of dorsoposterior face, flanking an oval impression on dorsal face.

Posterior femora strongly inflated, with the apical declivity excavated on both anterior and posterior faces ; excavation bearing a spine at basal edge on dorsal face, and the floor elevated in the long axis to partially separate the excavation into an anterior and a posterior section ; anterior section provided, with an oval, granulate-pubescent scar ; posterior section extended both posteriorly and ventrally, with a blackened tooth which juts from the median margin ; the apical wall of the excavation twisted asymmetrically posteriorly over the posterior part of the excavation, giving a peculiar aspect to this complex pattern. The femur is illustrated from three faces (Pl. II, 4, 5, 6) .

Described on eight males collected at light at night by P. P. Babiy at Moengo, Boven, Cottica R., Dutch Guiana ; the type (Cornell U. Type No. 2229) May 15, 1927 and the paratypes May 14 to May 28, 1927. This species is a member of Group IX. It is very distinct from its allies by reason of the strong, subentire elytral discal striae and the male intermediate femora.

Decarthron (Decarthron) simplicicornis **new species**

Type male. Measurements : head 0.27 x 0.33 mm.; pronotum 0.30 x 0.33 ; elytra 0.50 x 0.56 mm.; abdomen 0.33 x 0.56 mm.; total length 1.4 mm.

This is a large, relatively simple species with heavy antennae ; yellowish-brown, shining, with coarsely subasperate elytral punctures and pubescence of moderate length and abundance.

The head bears a pair of large eyes, four times as long as tempora and with exceptionally coarse facets. The normally convex vertex bears a pair of vertexal foveae on a line through the third row of ocular facets ; each fovea at the base of a broad and indefinite impression which extends to frontal margin. Front and clypeus simple, the latter steeply declivous and more than usually narrowed by the antennal acetabulae. A small triangular postantennal incisure present. Left mandible crossed dorsal to right. Maxillary palpi as for subgenus. Ventral surface of head as for genus, with an elongate oval fossa which is acute at each end.

Antennae ten-segmented, normal, save that the segments are coarser than usual, the antennae measuring 0.87 mm. long ; segment I elongate ; II elongate, as wide as first but much shorter ; III apically ovoidal, basally pedunculate ; IV, V, VI ovoidal ; VII slightly wider than sixth but of same length, subquadrate ; VIII larger than seventh, obtrapezoidal, about as long as wide ; IX similar to eighth but larger ; X with the usual pubescent sinuation on apicoventral face, slightly longer than the preceding two segments united.

Pronotum rounded-hexagonal, with a unifoveate base.

Elytra each basally bifoveate, with entire sutural stria and a well-defined discal stria half the elytral length.

Abdomen with five tergites in a length ratio of 4/1.2/1/1/1 with the first having a pair of parallel basal carinae one-third the segmental length and separated by slightly more than one-half the segmental width. Five sternites in a median length ratio of 3.5/.5/.5/.3/.5 without modification.

Metasternum strongly, simply convex with a median, longitudinal depression which becomes much deeper apically.

Anterior femora inflated. This inflated dorsal face rather abruptly sinuate in apical half. A small oval area, with defined borders, on the nearly vertical slope of the sinuation just ventral to the angulate origin of the sinuation.

Intermediate femora inflated in the dorsoventral axis to the same extent as the anterior femora, but much more inflated than the latter in the anteroposterior axis. The inflation of the dorsal face relatively little modified, it being slightly excavated in apical three-fourths. This excavation continued weakly over the anterior face, but strongly over the posterior face, these two areas divided by a carinoid ridge. No basal and no apical spines, teeth or processes on the dorsal face there is, however, a small tooth on the posterior face where the dorsal excavation merges into the posterior excavation.

Described on six males (Cornell U. Type No. 2230) , taken at light at night at Moengo, Boven, Cottica R., Dutch Guiana by P. P. Babiy; the material collected between May 12 and May 20, 1927. This species is a member of Group IX.

***Decarthron (Decarfuss) monoceros* (Schaufuss)**

Schaufuss (1882, p. xciv) described this insect in a very few words as *Bryaxis monoceros.* Despite its remarkable frontal horn, it remained unknown save for the unique type from Dutch Guiana, and Raffray (1904, p. 187) placed it as *Decarthron monoceros* in the last group of the genus (Group XV) . In this position, Raffray noted that the antennae were simple, and followed this allocation in subsequent papers (1908, 1911). Thirty-eight years later the present writer (1942, p. 185-200) revised the genus to include the subgenus *Decarthron* (Groups I to XIV of Raffray) and *Decarfuss* (Group XV) . In this latter subgenus were placed *monoceros* (Schaufuss) from Dutch Guiana, and *euspinifrons* Park from the Panama Canal Zone.

Raffray apparently had examined the type of Schaufuss, presumably last seen in the Ludwig Salvator Museum at Dresden-Oberblasewitz. Finding the Panama specimens with a very abnormal first antennal segment, I described *euspinifrons* as a new species.

When these data in mind, I examined the Cornell material with great anticipation, in the hope that the long lost *monoceros* might be found. The Dutch Guiana collection not only contained *monoceros,* but this species made up the largest series. There were 294 males and 158 females of *monoceros* (Schaufuss) , all collected at lights at night, by P. P. Babiy, at Moengo, Dutch Guiana. Such ample material made extensive dissection possible.

In the first place, the Dutch Guiana specimens fitted the description of *euspinifrons* Park from Panama, save for, small, rather consistent

departures in structure and measurements. This congruence was so apparent, even to the remarkable tumulus on the ventral surface of the first antennal segment of the male (Pl. II, 8) , that the author believes that *monoceros* (Schaufuss) and *euspinifrons* Park refer to the same species, and that the early Raffrayian position as to the simple antennae of *monoceros* is untenable.

In the second place, *monoceros* (Schaufuss) of Dutch Guiana, as represented by the 452 specimens at hand, is not identical with the Panamanian population. When the males of both groups are carefully contrasted, it is seen that the Dutch Guiana material has (1) a more flattened tumulus on the first antennal segment, (2) the punctures on the anteincisural area of the front are both coarser and more abundant, (3) the frontal horn is longer, and (4) the second antennal segment is relatively longer. These differences may be seen (Pl. III, 1) to coincide with extremities of the known range of the population. Thus I suggest that *euspinifrons* be placed as a western subspecies of *monoceros*.

Such a course is conservative, and at present gives us an eastern subspecies, *monoceros monoceros* (Schaufuss) , known from Dutch Guiana, and a western subspecies, *monoceros euspinifrons* Park, known from the Panama Canal Zone. As these two localities are separated by nearly 2000 miles not to mention a magnificent range of mountains, and many streams, including the Orinoco—information is very desirable on the possible population between these extremes as well as possible lines of dispersal: from an Amazonian center, or by rafting, etc. Material from Costa Rica, Venezuela and Brazil would be especially welcome. *Decarthron euspinifrons* probably is present in Colombia and should be found northwards, at least into northern Panama if not further. The typical *monoceros* should be found from Venezuela to French Guiana, and possibly through the Amazon drainage basin.

Nicely enough, we have seen that *Drasinus cisinsularis* spans the same great region (p. 288) .

The subspecific criteria involved are numerous, including certain items which could be tested statistically.[1] Of the latter, two are worth discussing briefly.

1. Frontal horn. This was measured to the nearest tenth of a millimeter by ocular micrometer between two fixed points, namely the distal point of the horn and the anterior margin of the most anterior ocular facet, in lateral view (Pl. II, 8).

2. Second antennal segment. This was measured to the nearest tenth of a millimeter by ocular micrometer between two fixed points, namely the apex and base of the segment (Pl. III, 1).

The data are summarized in the following table.

Variation in *Decarthron monoceros*

Subspecies	Locality	Frontal Horn		Second Antennomere	
		Specimen frequency	Length in mm.	Specimen frequency	Length in mm.
monoceros	Dutch	3	0.161	5	0.060
	Guiana	20	0.167	146	0.067
		32	0.174	68	0.074
		27	0.181	28	0.080
		43	0.188	3	0.087
		38	0.194		
		59	0.201		
		22	0.208		
		3	0.214		
		2	0.221		
	Total	249		250	
	Mean		0.190		0.071
	Standard deviation		0.012		0.005
	Range		0.06		0.027
euspinifrons	Panama Canal Zone				
	Mean		0.167		0.084

Despite the small size of the Panama sample (Park, 1942) the mean of the two items was each tested to ascertain whether each could have been drawn from a random sample of the Dutch Guiana population. As much as units from the mean was taken as the limits of probability. In the case of the frontal horn, there were 27 chances out of 1000 that a measurement of 0.167 mm. or less might be drawn from the sample. In the case of the second antennal segment, there were 6 chances out of 1000 that a measurement of 0.084 mm. or more might be drawn from the sample. Since we used a standard of ±3 units, the test of 1 chance out of 10,000 must be applied in the problem. Therefore, the statistical analysis demonstrated that the differences are not significant in these two items, and this checks with the morphological findings so far, that the two populations are not portions

of two genetically distinct species. On the other hand, a glance at the graphs of these two items (P1. VII, 3) , shows the extreme variation in each case of the Panama material, limited as it is. This confirms the present belief that the two populations are subspecies of the same species, separated by a great distance over which some intergradation must have taken place in the past, and may be occurring today. This is especially well shown in morphological findings such as flattening of the antennal tumulus, number and size of punctures, and other structural details.

A comparison of the aedeagus would be very interesting. The two male *euspinifrons* at hand are type and paratype, and additional specimens must be found for this dissection. On the other hand the adequate sample of *monoceros* allowed study of the aedeagus and quite a number were used to obtain an average picture of the male copulatory apparatus (Pl. II, 10) .

The aedeagus of this species is essentially similar to the aedeagus of *drasipalpum* (Pl. VII, 2) , as examination of the figures will show. In both, the number and arrangement of parts is generally the same, attesting to generic reality of *Decarthron.* The differences are specific, and subgeneric. In *monoceros,* obviously more specialized, the tendency is away from the primitive brachyglutine (staphylinoid) plan and towards bilateral asymmetry. The fixed apical stylus is flanged on one side, the two setae of each lateral lobe are very large and spiniform, the ejaculatory stylus heavier.

The following key integrates those brachyglutines reported from Dutch Guiana having ten-segmented antennae. It is complete with the exception of " *Bryaxis" aurivillii* described by Schaufuss (1882, p. 44) from Surinam. Schaufuss described this species in so little detail that I am unable to place it in the material before me. Raffray (1904, p. 252) placed this species in *Decarthron,* but not assigned to any group, and considered it a "species of doubtful affinity." It has never been discriminated to my knowledge.

KEY TO DUTCH GUIANA BRACHYGLUTINE SPECIES WITH TEN-SEGMENTED ANTENNAE

1 Ventral surface of head with a median longitudinal carina 2

Ventral surface of head with a large median oval fossa 3

2 (1) Third visible sternite with four elevations, a lateral pair relatively low, broad and lightly pubescent, and a median pair relatively high, narrow and densely tufted

MALE *Drasinus cisinsularis.*

Third visible sternite simply convex

FEMALE *Drasinus cisinsularis.*

3 (1) Pronotum with three antebasal foveae: a median and two laterals 4

Pronotum with a single antebasal fovea, the median 7

4 (3) Front prolonged as a subacute horn (Pl. III, 1)

MALE *Decarthron monoceros.*

Front not so prolonged 5

5 (4) Maxillary palpi greatly swollen (Pl. II, 7, 9)

FEMALE *Decarthron monoceros.*

Maxillary palpi not swollen, either normally developed (Pl. I, 6), or slender and drasinoid (Pl. III, 4) 6

6 (5) Clypeus abnormal: separated from front by deep, short, transverse cleft and medianly elevated into a transverse tubercle, the apex of which bears a pair of divergent setiform spines; palpi normal (Pl . I, 6)

MALE *Decarthron babiyi.*

Clypeus simply declivous; palpi very slender and drasinoid (Pl. III, 4) *Decarthron drasipalpum.*

7 (3) Anterior or intermediate femora, or both, abnormal (MALES) 8

Femora normal (FEMALES) 15

8 (7) Antennae abnormal 11

Antennae normal 9

9 (8) Anterior femur suddenly sinuate at apical fourth of dorsal face, this sinuation surmounted at basal edge by a prominent tumulus (Pl. II, 3) *Decarthron collifemur.*

Anterior femur not so formed 10

10 (9) Dorsal face of intermediate femur with a short, stout spine at basal edge of excavated area (Pl. II, 4, 5, 6) *Decarthron asymmifemur.*

Dorsal face of intermediate femur with no spine at basal edge of excavated area *Decarthron simplicicornis.*

11 (8) Anterior femur with dorsal face strongly, longitudinally compressed in distal half to form a carinoid crest (Pl. I, 3) *Decarthron dietrichi.*

Anterior femur not so formed 12

12 (11) Intermediate femur with dorsal face abruptly arcuosinuate but not excavated; posterior face of this femur not modified; dorsal face with a very long, arcuate, tubular spiniform seta at basal edge of arcuation; palpi relatively swollen (Pl . I, 5) *Decarthron wilhelminae.*

Intermediate femur with both dorsal and posterior faces excavated 13

13 (12) Intermediate femur with a spine at the basal edge of the excavation of dorsal face, at the apex of the segment's inflation (Pl. I, 9 or II, 1) 14

Intermediate femur with a spine just distad of the basal edge of the excavation of dorsal face, on the apical declivity of the segment's inflation (Pl. I, 1) *Decarthron fietcheri.*

14 (13) Antennal segments IV, V, VI subequally long and wide *Decarthron guianensis.*

Antennal segments IV, V, VI, VII, VIII forming a geniculation; IV much larger than III, V or VI, with its mesial face produced (Pl. II, 2) *Decarthron surinamensis.*

15 (5) Palpi relatively swollen, as in male *Decarthron wilhelminae.*

Palpi normal for subgenus: females of several species not yet discriminated.

ABSTRACT

In a preliminary report on the pselaphids of Dutch Guiana, the following twelve new species are described and illustrated : *Thesiastes ramtus, Rhinoscepsis orbis, Decarthron babiyi, D. dietrichi, D. drasipalpum, D. fletcheri, D. wilhelminae, D. guianensis, D. surinamensis, D. collifemur, D. asymmifemur* and *D. simplicicornis.*

Keys are given to the species of *Bythinoplectus, Rhinoscepsis,* and to the Guiana species of *Decarthron.*

The genus *Rhinoscepsis* is revised, with the two subgenera *Rhinoscepsis s.s.* and a new subgenus *Rafrhisis.* The distribution of the genus is discussed and mapped with respect to eye facet number.

The aedeagus of *Rhinoscepsis militaris* (Schaufuss) , *Decarthron drasipalpum* new species, and *Decarthron monoceros* (Schaufuss) is described and illustrated in each case and the apparatus discussed with respect to the evolution of pselaphids,

In *Decarthron drasipalpum* an abdominal grandular-pubescent area with peculiar capitate setae is described, illustrated and discussed with respect to the evolution of myrmecocolous pselaphids.

On the basis of a large sample of *Decarthron monoceros* (Schaufuss) a statistical analysis resulted in reducing *Decarthron euspinifrons,* Park, of Panama, to a western subspecies of *monoceros.*

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New names in bold-face type